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EXAMINER

MAI, NGOCLAN THI

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

Status of Claims

1. Claims 1-11 are currently under examination, wherein claims 1-4, 7 and 8 are currently amended in applicant's preliminary amendment filed on 5/24/06.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCall et al. (U.S. Patent No. 6,001,150).

With regards to claims 1, 2, and 4-7, McCall et al discloses a raw material powder for compaction in a mold at temperature below 100 C, which is warm molding. See col. 4, lines 8-17 and claims 12-13 and 15. The raw material powder comprises a lubricant mixture for containing boric acid and at least one other powder metallurgy lubricant selected from a group consisting of metal stearate such as zinc stearate, lithium stearate, or lithium 12-hydroxystearate; an amide wax as well as other conventional powder metallurgy lubricant which may. See col. 3, lines 11-15. McCall et al teaches the amount of lubricant mixture is from 0.1 to 5% by weight of the raw material powder. See col. 2, lines 42-49 and col. 3, lines 40-41. The McCall et al further teach the lubricant containing from 5 to 95% by weight of the boric and

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from 95% to 5% by weight of the at least one other powder metallurgy lubricant. See col. 2, line 65 to col. 3, line 2. McCall et al also teaches the lubricant mixture generally consist of solid particles, preferably below about 100 microns and that particle that are too large can lead to segregation in the admixture or to voids in the sintered parts made from said admixture. See col. 3, lines 57-61.

McCall et al differs from the claims in that McCall et al does not specifically teach (1) lithium 12-hydroxystearate and (2) the exact mount as recited in the instant claims. Regarding issue (1), base on the above teaching it would have been obvious to one of ordinary skill in the art to have selected lithium 12-hydroxystearate in the listed disclosed by the reference because the reference teaches the same utility over the overlapping range. Applicant is further directed to MPEP 2144.05.

Concerning issue (2), one of ordinary skill in the art at the time the invention was made would have considered the invention to have been obvious because the claimed lubricant proportions taught by McCall et al overlap the instantly claimed proportions and therefore are considered to establish a prima facie case of obviousness. It would have been obvious to one of ordinary skill in the art to select any portion of the disclosed ranges including the instantly claimed ranges from the ranges disclosed in the prior art reference, particularly in view of the fact that; “The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages”, In re Peterson 65 USPQ2d 1379 (CAFC 2003). Also, In re Geisler 43 USPQ2d 1365 (Fed. Cir. 1997); In re Woodruff, 16 USPQ2d 1934 (CCPA 1976); In re Malagari, 182 USPQ 549, 553 (CCPA 1974) and MPEP 2144.05.

Concerning claim 3, none of the lubricants disclosed by McCall et al has melting point below the molding temperature of the raw material powder.

4. Claims 8-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over McCall et al in view of Ozaki et al. (US 2001/0038802 A1).

McCall et al does not teach attaching a hydroxy fatty acid salt (mold lubricant) having an average particle diameter of 50 micron or less on a mold before performing warm molding.

Ozaki et al teaches adhering, i.e., attaching, lubricant having melting point higher than the predetermined temperature of the compacting pressure to the surface of a die that is at room temperature or preheated by electrifying in order to reduce the ejection force used during removing the molded part from the mold. See [0018]. Ozaki et al teaches lubricant powder with at least 90% of the particle having diameter about 50 micron or less are preferred in order to adhere the lubricant with liability. See [0046]. The solid lubricant disclosed can be a metallic soaps such as lithium stearate, lithium laurate, lithium hydroxystearate and calcium stearate. See [0021], [0050] and [0051]. Table 1-1, Compact No. 2, 3 and 6 all exemplify the use of lithium hydroxystearate.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to attach die lubricant having the claimed particle size on the surface of the mold used for compaction in the method of making sintered metal part taught by McCall in order to obtain sintered part having high density and low in ejection force as taught by Ozaki et al. It would also have been obvious to one skilled in the art to have selected lithium hydroxystearate in the listed disclosed by Ozaki et al because Ozaki et al teaches the same utility over the overlapping range. Applicant is further directed to MPEP 2144.05. Furthermore, it would be

obvious to one skilled in the art to have selected the claimed lithium 12-hydroxystearate or 12-hydroxy stearate as the die or mold lubricant since it would eliminating the cost of having to acquire two different lubricants in the method of making sintered part of McCall in view of Ozaki et al.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to NGOCLAN T. MAI whose telephone number is (571)272-1246. The examiner can normally be reached on 8:30-5:00 PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Roy King/
Supervisory Patent Examiner, Art Unit
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n.m.